



## Supplies for Organic Analysis

# LECO Corporation

For over 75 years, LECO Corporation has remained a worldwide leader in the development of top quality analytical instrumentation, mass spectrometers, metallography and optical equipment, and related consumables. We believe in providing our customers with the best experience before, during, and after the sale. Our network of engineering, manufacturing, service, customer training, and testing experts work together to exceed customer expectations. All instruments, and most instrument components and consumables, are manufactured on-site in our manufacturing facilities, allowing for strict control over their quality via a process certified to the standards of ISO-9001:2008. Following the sale of your instrument, our application, service, and training experts are available for instrument assistance or service, ensuring you get the most out of your LECO equipment. With a worldwide network of sales and support professionals, along with CE testing performed at our on-site compliance testing center, LECO is prepared to meet the needs of our customers around the globe.



An independent, family-owned company, LECO is dedicated to serving our customers—from concept to design, development to manufacture, to customer service and support after the sale. Our quality—and our results—speak for themselves.

## Mobile Laboratories

LECO Corporation's unique mobile laboratories travel throughout North America, bringing the latest innovations in analytical instrumentation to your neighborhood. Take the opportunity to view our products in use as well as discuss everything from methods to maintenance with knowledgeable LECO technicians.

The LECO fleet includes four specially designed mobile laboratories for organic, materials characterization, metallographic, and spectrographic analyses. To find out more about LECO's Mobile Laboratories or to obtain the latest schedule, call 269-983-5531, 800-292-6141 (U.S. only), or log onto [www.leco.com](http://www.leco.com).



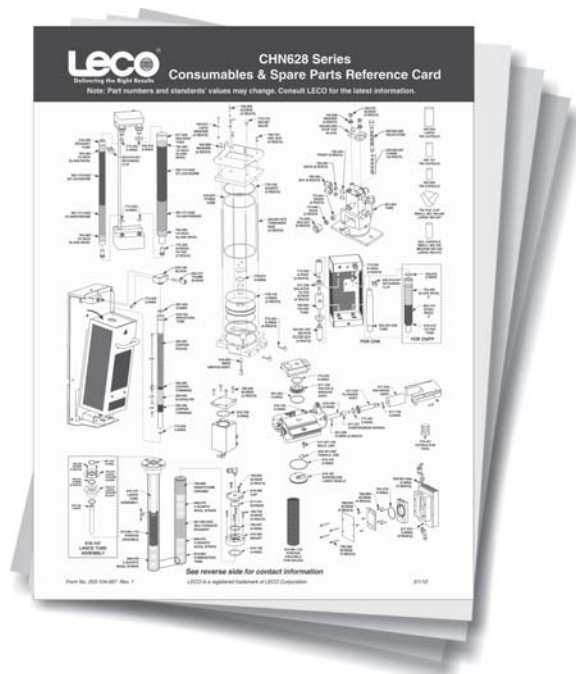
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To get the best results from your instrument, use only genuine LECO consumables!

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## Support Materials

A variety of support materials are available to customers of LECO products. Reference Cards offer exploded views of individual instruments, indicating precise locations of spare parts, necessary part numbers, and descriptions of consumable products. Material Safety Data Sheets (MSDS) are also available for a variety of chemical products offered through LECO. These materials may be obtained by contacting your LECO sales representative, or by downloading the latest version from our website, [www.leco.com](http://www.leco.com).



# Ordering Information/General Terms

## Ordering, Customer Assistance, and all Other Inquiries



### On-Line Ordering Now Available!

- To receive your free username and password, call **800-292-6141** or go to [www.leco.com/products/consumables/consumables\\_registration.html](http://www.leco.com/products/consumables/consumables_registration.html)
- Visit [www.lecodirect.com](http://www.lecodirect.com)
- Enter your log-in information and place your order

*\*Only available in the USA.*

**Phone** 800-292-6141 or  
269-985-5496



### Email

[sales@leco.com](mailto:sales@leco.com)  
for Purchase Orders or  
pricing information



[info@leco.com](mailto:info@leco.com)  
for general inquiries

**Fax** 269-982-8977



### Mail

LECO Corporation  
3000 Lakeview Avenue  
St. Joseph, MI 49085



VISA, Mastercard, and American Express Accepted.



## Terms and Conditions

- Terms: Net 30 days with approved credit.
- Prices shown are U.S. dollars, F.O.B. St. Joseph, Michigan. Freight charges are prepaid and added to the invoice.
- Sales taxes will be added where applicable.
- Returns must be approved in advance; re-stocking fee may be applied. Return Material Authorization (RMA) is required for all returns. Contact LECO for RMA information.
- Disclaimer: LECO products are intended for use by professional laboratory personnel who are familiar with the handling of these materials. Our products are not for use in household, drug, medical, or cosmetic applications. The buyer and/or user assumes full responsibility for the safe handling, storage, application, and proper disposal of all products ordered from this catalog.
- Complete TERMS and CONDITIONS are included with quotations and invoices.
- **Prices and part numbers are subject to change without notice.**

# Information for Elemental Analysis

LECO Corporation is the world leader in elemental determinators for various organic applications. Carbon, Hydrogen, Nitrogen/Protein, Sulfur, Oxygen, and Mercury may be determined in various types of samples including foods, feeds, oilseeds, meats, wet/dry milled products, fertilizers, petroleum products, pharmaceuticals, cements, coal/cokes, and other organic materials.

LECO's determinators are designed with specific capabilities to match the requirements of our customers. Many of the requirements that have been established include precision/accuracy, sample size, instrument range, and hardware/software robustness. In order to obtain the highest level of performance, we recommend that our customers define the following prior to operating our instruments.

## **Appropriate Sample Size for Your Application**

This is generally determined by the type of sample, instrument range, desired precision, level of robustness, sample holder, and methodology requirements. Typically, any elemental determination performed at a mass less than 50 mg is considered a microanalysis; whereas, an analysis performed with a mass of 50 mg to 1 g is considered a macroanalysis. See page 5 for more information on using the appropriate sample size.

## **Desired Precision and Accuracy for Your Application**

Based on standards and a realistic sample size. Appropriate sample size is determined by proven method requirements (for example ASTM or AOAC), level of robustness, and desired sample preparation. Standards are determined by availability and level of certification required for your laboratory. See page 14 for more information on the classification of standards.

## **Desired Sample Preparation**

The level of sample preparation is directly correlated to the heterogeneity of the sample. Most organic products may be analyzed as-is, from the industrial process. However, in order to improve performance on a difficult application, it may be required to pre-treat, pre-dry or pelletize the sample prior to its addition to a sample holder. See page 7 for more information on the types of sample containers/sample sizes that may be used for our elemental determinators.

## **Desired Level of Maintenance Commitment or Level of Robustness**

The amount of preventive maintenance performed on any elemental determinator is relative to the instrument's ability to handle the amount and type of sample that is analyzed. We have designed our instruments to maximize the level of robustness based on the lowest amount of involvement by the operator; however, there are several measures that can be taken to maximize the longevity of the instrument. Mainly, routine maintenance, appropriate sample size, and the use of proper consumable scrubbers for each application. See page 26 for more information on LECO's Preventative Maintenance Agreements (PMAs).

At LECO Corporation, we have several trained Application Scientists that are available to help guide you through any question you may have. Please feel free to contact our scientists at 800-292-6141 or 269-985-5496 for support on your application!



# Consumable Packs

Purchasing the highest quality consumables at the most affordable price is the fundamental goal of all instrumentation users. In addition, it is very important to maintain the proper inventory of consumables for your annual usage in order to prevent wasteful spending.

With over 15 to 25% discounts on typical list pricing and easily ordered with one part number, LECO's Consumable Packs provide specific consumables for our elemental determinators based on frequency of use and instrument model.

## TruEssential 1K Consumable Packs

These packages contain all the necessary consumables to perform 1000 analyses on the CHN/CN/FP628 Series, TruMac®, and FP-528 instrument models. Pricing is significantly reduced, and all items can be purchased with a single part number.

<b>Part No.</b>	<b>Description</b>
502-751-HAZ	<i>TruEssential Pack (Small Tin Foils)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles, and Small Tin Foil Cups
502-752-HAZ	<i>TruEssential Pack (Large Tin Foils)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles, and Large Tin Foil Cups
502-753-HAZ	<i>TruEssential Pack (Small Gel Caps)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles, and Small Gel Caps
502-754-HAZ	<i>TruEssential Pack (Medium Gel Caps)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles, and Medium Gel Caps
502-755-HAZ	<i>TruEssential Pack (Tin Caps)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles, and Tin Caps
502-720-HAZ	<i>TruMac 1K Consumable Pack (for Solid Samples)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Steel Wool, Glass Wool, and Ceramic Boats
502-721-HAZ	<i>TruMac 1K Consumable Pack (for Liquid Samples)</i> Includes: Anhydrone, N Catalyst, Lecosorb, Copper Sticks, Steel Wool, Glass Wool, and Ceramic Boat Liners

## 5K Consumable Packs

These packages contain all of the necessary consumables to perform 5000 analyses. Pricing is significantly reduced, and all items can be purchased with a single part number.

<b>Part No.</b>	<b>Description</b>
502-756-HAZ	CHN/CN/FP628 Series (w/Small tin foil cups)
502-757-HAZ	CHN/CN/FP628 Series (w/Large tin foil cups)
502-758-HAZ	CHN/CN/FP628 Series (w/Small gel caps)
502-759-HAZ	CHN/CN/FP628 Series (w/Medium gel caps)
502-760-HAZ	CHN/CN/FP628 Series (w/Small tin caps)
616-199-HAZ	FP-528 (w/Small tin foil cups)
617-016-HAZ	FP-528 (w/Small gel caps)
617-016-110-HAZ	FP-528 (w/Medium gel caps)
789-431-HAZ	SC-144DR
502-722-HAZ	TruMac for Solid Samples
502-723-HAZ	TruMac for Liquid Samples

# General Combustion Supplies

## Reagents/Packing Material

<b>Part No.</b>	<b>Description</b>	<b>Contents</b>
501-081	Glass Wool	454 g (1 lb.) box
501-170	Rare Earth Copper Oxide	50 g bottle
501-171-HAZ	Anhydron	454 g (1 lb.) bottle
501-609-HAZ	Furnace Reagent (Calcium Oxide/Kaolin)	100 g bottle
502-049	Nitrogen Catalyst	50 g bottle
502-174-HAZ	Lecosorb (20/30 Mesh)	500 g bottle
502-177	Quartz Wool	50 g package
502-188	Alumina Oxide Pellets	200 g bottle
502-189	Copper Sticks	100 g ampule
502-190	Copper Oxide Wire	100 g bottle
502-196	Carbon Black Powder	10 g bottle
502-226	Silver Vanadate	10 g bottle
502-228	Graphite Pad	One 2 <sup>1</sup> / <sub>4</sub> " x 2 <sup>1</sup> / <sub>4</sub> " pad
502-283	Sorbit® (TruSpec Micro)	500 per package
502-295	Copper Turnings	100 g bottle
502-304	Copper Sticks	100 g bottle
502-304-500	Copper Sticks	500 g bottle
502-310	Steel Wool	454 g (1 lb.) package
502-351	Halogen Scrubber	50 g bottle
502-359	Magnesium Oxide Reagent	200 g bottle
502-644	Furnace Reagent, Micro	60 g bottle
608-379	Quartz Wool Strips	Ten 15-inch strips
617-441	Afterburner Filter for TruSpec	1 each
763-265	Glass Wool	227 g (1/2 lb.) package
769-608-HAZ	Antimony	200 g bottle
769-610-HAZ	F/Cl Absorbent Material	225 g bottle

## Accelerators/Combustion Aids

<b>Part No.</b>	<b>Description</b>	<b>Contents</b>
501-426	COM-AID™ (For Solids)	454 g (1 lb.) bottle
501-427	COM-AID™ (For Liquids)	454 g (1 lb.) bottle
501-441	Sucrose	50 g bottle
501-636-HAZ	Vanadium Pentoxide	250 g bottle
502-301	Tungsten Trioxide	125 g bottle
502-321	COM-CAT™	250 g bottle

# Sample Size

## Using the Appropriate Sample Size

The amount of sample that may be used as the appropriate sample size for certain matrices is governed by the need to achieve certain limits of quantitation with respect to the determined content of the sample.

According to work done by M.J. Gardner in "Sample Heterogeneity and Analytical Precision: How Much Sample Should I Take for Analysis"<sup>1</sup>, the uncertainty for different sample sizes diminishes with larger sample sizes; however, the level of improvements in precision reach a point of limited return beyond 0.5 g (500 mg) for samples of higher elemental concentration and 1 g (1000 mg) for samples of lower elemental concentration.

Assuming ~63  $\mu\text{m}$  particle size on a powdered sample at an elemental concentration of 10%, Gardner determined the following uncertainties based on sample size.

Sample Size (mg)	90% probability interval ( $\pm\%$ )
100	1.1
200	0.8
500	0.5
1000	0.4

Assuming ~63  $\mu\text{m}$  particle size on a powdered sample at an elemental concentration of 1%, Gardner determined the following uncertainties based on sample size.

Sample Size (mg)	90% probability interval ( $\pm\%$ )
100	3.7
200	2.6
500	1.6
1000	1.1
2000	0.8

It is best to contact our Applications Laboratory for suggestions on sample size for your matrices. Knowing the appropriate sample size for your desired precision is imperative when lengthening the maintenance interval on an elemental determinator.

- For standard feed and milling, use 150 to 250 mg for <5% RSD
- For standard food, petfood, and soils, use 250 to 500 mg for <5% RSD
- For meat and low-level sample concentrations, use 500 to 1000 mg for <5% RSD
- For pharmaceutical applications, use 1 to 10 mg for <5% RSD

<sup>1</sup>Analytical Proceedings including Analytical Communications, March 1995, Vol 32 Pg 115-116



# Capsules and Crucibles

Refer to pages 8 and 9 for a visual guide to selecting the correct replacement capsule or crucible.

## AC500/AC600

Part No.	Description	Contents
774-204	Crucible	10 per package

## AF700

Part No.	Description	Contents
625-501-662	Ash Cone Tray (Dual-Sided, 5-6 Place)	100 per package

## AMA254

Part No.	Description	Contents
614-822-102	Small Nickel Boat	1 per package
614-822-114	Large Nickel Boat	1 per package

## FP-528 (See CHN/CN/FP628 Series, TruSpec Series, FP-528)

### SC-144DR/S-144DR/C-144

Part No.	Description	Contents
529-204	Ceramic Boats	50 per package
529-204-250	Ceramic Boats	250 per package

### SC632, CHN628 Series S Module, TruSpec S Module

Part No.	Description	Contents
528-203-250	Ceramic Boats, for macrosamples/horizontal-loading furnaces	250 per package
529-203	Ceramic Boats, for macrosamples/horizontal-loading furnaces	100 per package

## TGA701

Part No.	Description	Contents
502-628	Foil Liners, for lining TGA Crucibles (621-331)	1200 per package
529-048	Covers, for 529-047 Large Ceramic Crucibles	5 per package
621-331	Large Ceramic Crucibles (529-048 Cover), for thermogravimetric and proximate analyses	5 per package

## TruMac

Part No.	Description	Contents
502-343	Nickel Boat Liner	100 per package
528-203-250	Ceramic Boats, for macrosamples/horizontal-loading furnaces	250 per package
529-203	Ceramic Boats, for macrosamples/horizontal-loading furnaces	100 per package
625-505-430	Nickel Boats, for aqueous sample using TruMac N/CN models	50 per package

# Capsules and Crucibles

Refer to pages 8 and 9 for a visual guide to selecting the correct replacement capsule or crucible.

## CHN/CN/FP628 Series, TruSpec Series, FP528 Capsules and Cups

Note: In order to extend the interval between ash removal, it is recommended to use the container with the lowest ash content.

Part No.	Description	Sample Size Range	Sample Type	Ash Content	Applicable Instruments	Contents
502-338	Small Gel Caps	50-250 mg	Solid	Low	FP628, TruSpec N, FP528	400/pkg
502-382	Medium Gel Caps	50-500 mg	Solid	Low	FP628, TruSpec N, FP528	400/pkg
502-810	Large Gel Caps	50-1000 mg	Solid	Low	FP628, TruSpec N	400/pkg
502-186-100	Small Tin Foil Cups (100/btl - 502-186-200)	50-350 mg	Solid	Med	CHN/CN/FP628 Series, TruSpec Series, FP528	1000/pkg
502-397-400	Large Tin Foil Cups (100/pkg - 502-397)	50-1000 mg	Solid	High	CHN/CN/FP628 Series, TruSpec Series	400/pkg
502-040-100	Small Tin Capsules (100/btl - 502-040)	50-400 mg	Solid/Liquid	Med	CHN/CN/FP628 Series, TruSpec Series, FP528	1000/btl
502-167	Medium Tin Capsules	50-750 mg	Solid/Liquid	High	CHN/CN/FP628 Series, TruSpec Series	100/btl
502-825	Large Tin Capsules	50-1000 mg	Solid/Liquid	Med	CHN/CN/FP628 Series, TruSpec Series	50/btl

## CHN/CN/FP628 Series, TruSpec Series, FP528 Crucibles

Part No.	Description	Sample Type	Contents
614-961-110	Reticulated Crucible	Solid/Liquid	10/pkg
617-605	Reticulated Crucible	Liquid	10/pkg
780-899	Honeycomb Ceramic Stop		1/pkg

## CHN/CN/FP628 Series, TruSpec Series, FP528 Capsules for Volatile Samples (ASTM D5291)

Part No.	Description	Contents
501-571	Copper Capsules (seal w/502-008 Tin Plug)	100/pkg
502-008	Tin Plugs for Sealing 501-571	100/pkg

## TruSpec Micro CHNS/O Capsules

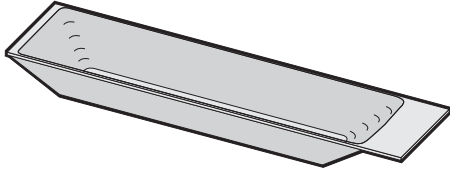
Part No.	Description	Contents
502-206	Silver Capsules for CHNS Micro Analysis	1000/pkg
601-963	Tin Capsules for CHN/O Micro Analysis	1000/pkg

## TruSpec Micro CHNS/O Crucibles

Part No.	Description	Contents
502-489	Micro Reticulated Crucible (Micro CHNS Analysis)	10/pkg
614-961-110	Reticulated Crucible	10/pkg
625-511-154	Reticulated Crucible for Primary Furnace Reagents	5/pkg
606-026	Graphite Crucible for Oxygen Analysis	10/pkg

# Capsules and Crucibles

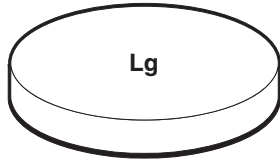
Most commonly used items represented.



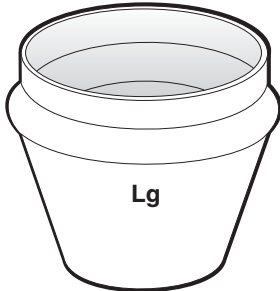
**614-822-114**  
Large Nickel Boat  
(AMA254 only)



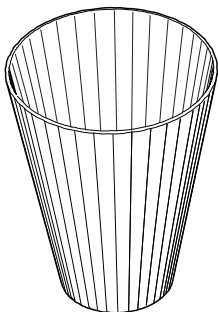
**614-822-102**  
Small Nickel Boat  
(AMA254 only)



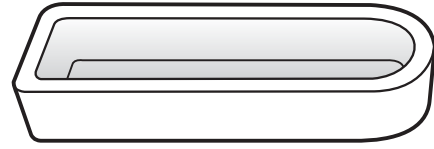
**529-048**  
Ceramic Cover  
Lg



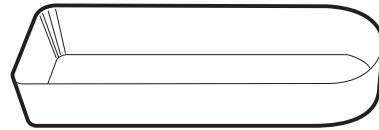
**621-331**  
Ceramic Crucible  
(TGA701)  
Lg



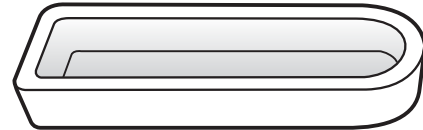
**502-628**  
Foil Liner  
(for 621-331 Crucible only)



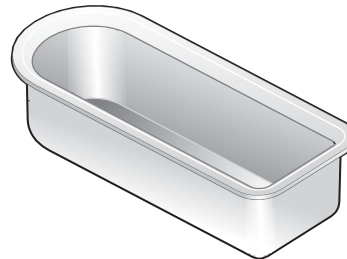
**529-203**  
**528-203-250**  
Ceramic Boat  
(CHN628 S Module, TruSpec S Module,  
TruMac, S/SC632)



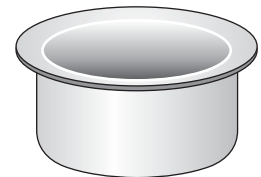
**502-343**  
Nickel Boat Liner  
(For use with 529-203 and 528-203-250 Ceramic Boats)



**529-204 Ceramic Boat (SC-144 Series)**  
**529-204-250 Ceramic Boat (SC-144 Series)**

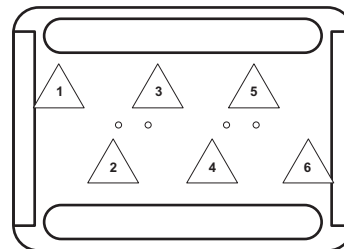


**625-505-430**  
Nickel Boat  
(TruMac CN/N)

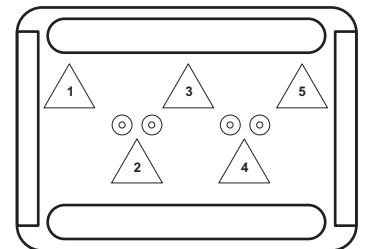


**774-204**  
Crucible  
(AC-Series)

CONE TRAY TOP



CONE TRAY BOTTOM



**625-501-662 Ash Cone Tray**  
(Dual Sided 5/6 Place) 100 Pk (AF700)

# Capsules and Crucibles

Most commonly used items represented.



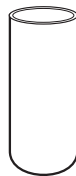
**502-040**  
**502-040-100**  
Tin Capsule  
(small)



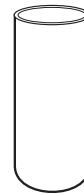
**502-167**  
Tin Capsule  
(medium)



**502-825**  
Tin Capsule  
(large)



**502-338**  
Gel Capsule  
(small)



**502-382**  
Gel Capsule  
(medium)



**502-810**  
Gel Capsule  
(large)



**601-963**  
Tin Capsule  
(micro)



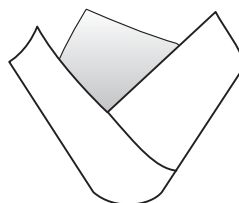
**502-206**  
Silver  
Capsule  
(micro)



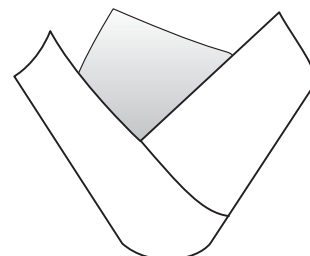
**502-008**  
Tin Plug



**501-571**  
Copper  
Capsule



**502-186-200** (small)  
**502-186-100** (small)  
Tin Foil Cup



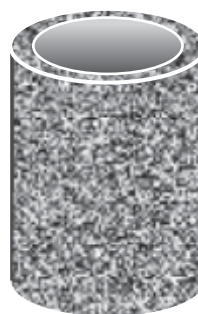
**502-397** (large)  
**502-397-400** (large)  
Tin Foil Cup



**614-961-110**  
Porous Reticulated  
Crucible for solid samples  
(FP-528 & TruSpec)



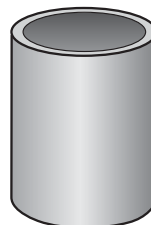
**617-605**  
Porous Reticulated  
Crucible for liquid samples  
(FP-528 & TruSpec)



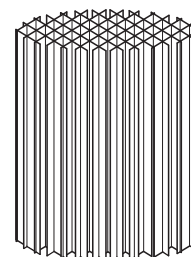
**625-511-154**  
Porous Reticulated  
Crucible



**502-489**  
Micro Porous  
Reticulated  
Crucible



**606-026**  
Graphite  
Crucible



**780-899**  
Honeycomb  
Ceramic  
Stop

# Combustion Tubes and Glassware

Refer to pages 12 and 13 for a visual guide to selecting the correct replacement tubes and glassware.

## AF700

<b>Part No.</b>	<b>Description</b>
619-316	Filter Tube
625-501-391	Furnace Tube
625-501-394	D-Tube
633-101-990	Gas Inlet Tube
633-101-997	High Temperature Furnace Tube

## AMA254

<b>Part No.</b>	<b>Description</b>
614-822-105	Catalyst Tube
614-822-110	Amalgamator

## FP-528 (See CHN/CN/FP628 Series, TruSpec Series, FP-528)

## SC-144DR/S-144DR/C-144

<b>Part No.</b>	<b>Description</b>
606-327	Reagent Tube
616-051	Purge Tube
616-070	Inner Combustion Tube
616-086	Boat Stop Ceramic
616-089	Outer Combustion Tube

## SC632, CHN628 Series S Module, TruSpec S Module

<b>Part No.</b>	<b>Description</b>
606-308	Boat Stop Ceramic
606-309	Outer Combustion Tube
606-313	Inner Combustion Tube
619-455	Reagent Tube
625-401-351	Lance Tube, Autoloader
625-401-352	Lance Tube, Manual Load

# Combustion Tubes and Glassware

Refer to pages 12 and 13 for a visual guide to selecting the correct replacement tubes and glassware.

## CHN/CN/FP628 Series, TruSpec Series, FP-528

<b>Part No.</b>	<b>Description</b>	<b>Used On</b>
601-390	Furnace Filter Tube	CHN/CN/FP628 Series, TruSpec Series, FP-528
614-962	Lance Tube	FP-528
616-108	U-Shaped Combustion Tube	FP-528
616-146	Lance Tube	CHN/CN/FP628 Series, TruSpec Series
617-548	Reagent Tube (Incoming Carrier Gas)	CHN/CN/FP628 Series, TruSpec Series
619-065	U-Shaped Combustion Tube with flat bottom	CHN/CN/FP628 Series, TruSpec Series
619-154	Catalyst Heater Tube	CHN/CN/FP628 Series, TruSpec Series
619-268	High Sensitivity Reagent Tube (Aliquot)	CHN/CN/FP628 Series, TruSpec Series
619-316	Extended-Use Glass Filter Tube	CN/FP628 Series, TruSpec Series
622-001-026	Filter Tube	CHN/CN/FP628 Series
771-030	Bubble Tube	FP-528
775-601	Reagent Tube	FP-528
780-899	Honeycomb Ceramic Crucible Stop	FP-528

## TruMac

<b>Part No.</b>	<b>Description</b>
606-308	Boat Stop Ceramic
617-548	Secondary Filter/Incoming Helium Scrubber Tube
619-154	Catalyst Heater Tube
619-268	Aliquot Dose Scrubber Tube
625-601-554	Outer Combustion Tube
625-601-555	Inner Combustion Tube
625-602-187	Lance Tube
625-602-539	Primary Filter Tube

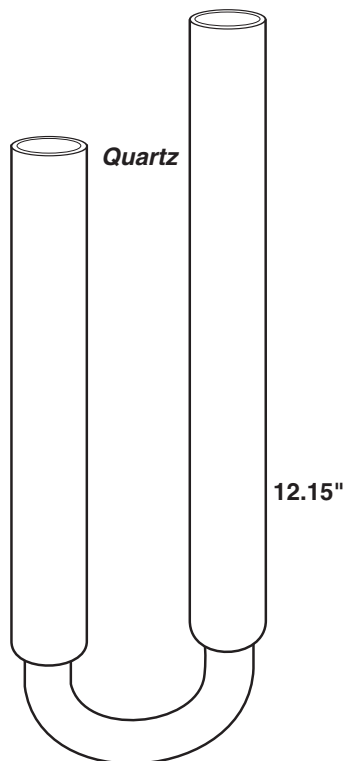
## TruSpec Micro O

<b>Part No.</b>	<b>Description</b>	<b>Used On</b>
608-065	Graphite Lance	TruSpec Micro O
608-130	Inner Combustion Tube	TruSpec Micro O
619-425	Filter Tube	TruSpec Micro CHNS
619-774	Lance Tube	TruSpec Micro CHNS
619-776	Reagent Tube	TruSpec Micro CHNS
619-777	Middle Tube	TruSpec Micro CHNS
625-401-360	Outer Combustion Tube	TruSpec Micro O
775-601	Reagent Tube	TruSpec Micro O

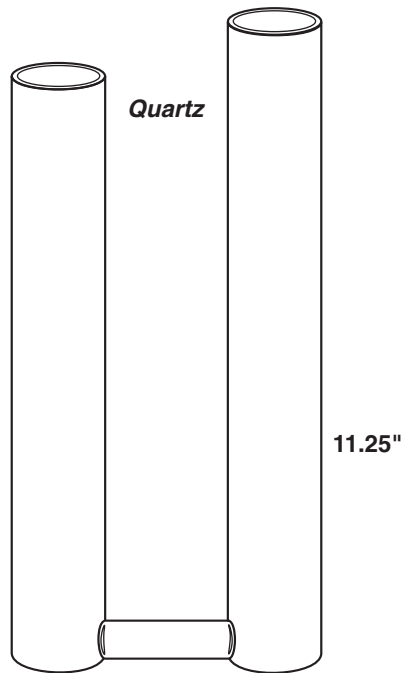


# Combustion Tubes and Glassware

Most commonly used items represented.



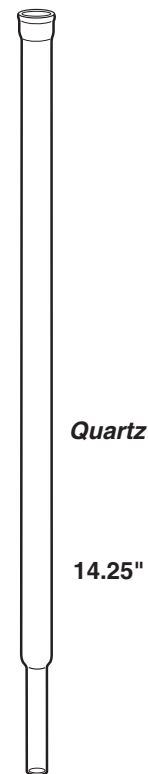
**616-108**  
U-Shaped  
Combustion Tube  
*(FP-528 Only)*



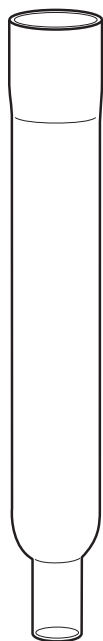
**619-065**  
U-Shaped Combustion Tube  
w/Flat Bottom  
*(CHN/CN/FP628 Series, TruSpec Series)*



**619-268**  
High Sensitivity  
Reagent Tube



**619-154**  
Catalyst  
Heater Tube



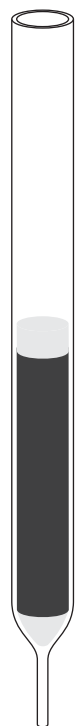
**625-602-539**  
Furnace Filter  
Tube



**771-030**  
Bubble  
Tube



**775-601**  
Reagent  
Tube



**614-822-105**  
Calalayst Tube  
*(AMA254 Only)*



**619-425**  
Filter Tube



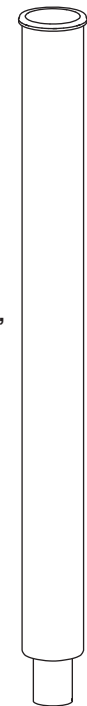
**622-001-026**  
Filter Tube



**614-822-110**  
Amalgamator  
*(AMA254 Only)*



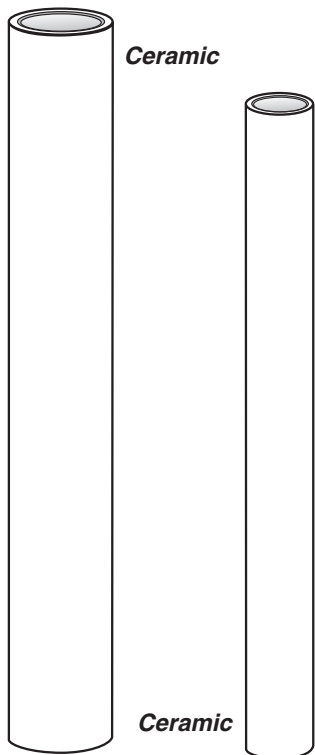
**619-455**  
Reagent  
Tube



**617-548**  
Reagent  
Tube

# Combustion Tubes and Glassware

Most commonly used items represented.

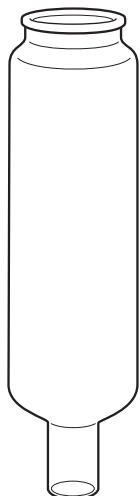


**608-129**  
Outer  
Combustion  
Tube  
(TruSpec Micro O)

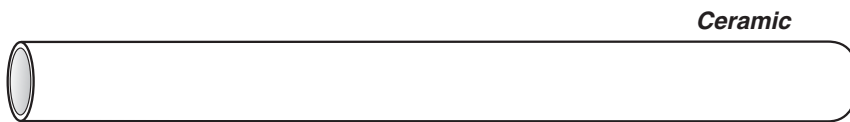
**608-130**  
Inner  
Combustion  
Tube  
(TruSpec Micro O)



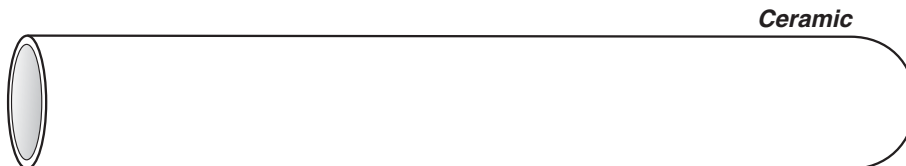
**606-327**  
Reagent  
Tube



**619-316**  
Large Volume  
Reagent  
Tube



**606-313** Inner Combustion Tube (SC632, CHN628 Series S, TruSpec S)



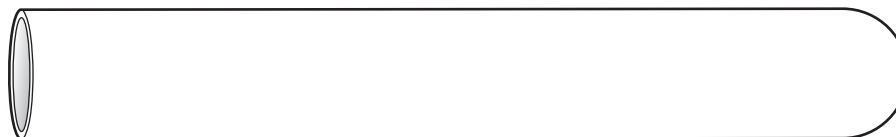
**606-309** Outer Combustion Tube (SC632, CHN628 Series S, TruSpec S)



**616-070** Inner Combustion Tube (SC-144 Series)



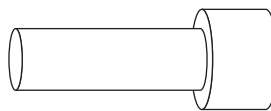
**616-089** Outer Combustion Tube (SC-144 Series)



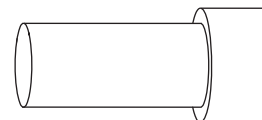
**625-601-554** Outer Combustion Tube (TruMac) 15.62"



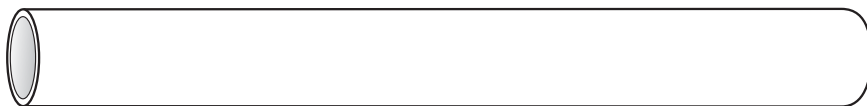
**625-601-555** Inner Combustion Tube (TruMac) 14.62"



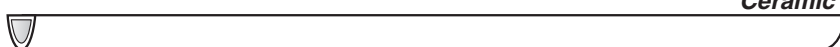
**616-086**  
Boat Stop  
(SC144-Series)



**606-308**  
Boat Stop  
(SC632, CHN628 Series S,  
TruSpec S, TruMac)



**625-501-391** Furnace Tube (AF700)



**625-501-394** D-Tube (AF700)



**633-101-990** Gas Inlet Tube (AF700)

# Standards

Numbers listed represent an average from multiple lots or an expected range for a particular lot's average. Call 800-292-6141 for exact chemistry and availability.

## Pure Chemical Set-Up Standards

Part No.	Description	% C	% H	% N	% O	% S	BTU/lb.	Contents
501-034	Calcium Carbonate	12.0	—	—	—	—	—	50 g
501-048	Potassium Biphthalate	47.05	2.47	—	31.34	—	—	20 g
501-050	Nicotinic Acid	58.53	4.09	11.38	—	—	—	15 g
501-053	Acetanilide	71.09	6.71	10.36	11.84	—	—	10 g
501-441	Sucrose	42.10	6.48	—	51.42	—	—	50 g
502-085	Zinc Sulfide	—	—	—	—	32.91	—	50 g
502-092	EDTA	40.80–41.20	5.46–5.54	9.52–9.60	—	—	—	50 g
502-092-250	EDTA	40.80–41.20	5.46–5.54	9.52–9.60	—	—	—	250 g
502-101	Durene	89.49	10.51	—	—	—	—	10 g
502-184	Benzoic Acid Powder	68.85	4.95	—	26.20	—	11373	10 g
502-203	Stearic Acid	75.99	12.76	—	11.25	—	—	5 g
502-204	Dinitrobenzoic Acid	39.63	1.90	13.21	45.26	—	—	5 g
502-205	Caffeine	49.48	5.19	28.85	16.48	—	—	5 g
502-207	Cystine	29.99	5.03	11.66	26.63	26.69	—	5 g
502-209	Sulfamethazine	51.78	5.07	20.13	11.50	11.52	—	5 g
502-211	Glycine	32.00	6.71	18.66	42.63	—	—	50 g
502-298	Sulfamethazine	51.78	5.07	20.13	11.50	11.52	—	25 g
502-601	Nitrogen (Liquid)	—	—	0.0100% (100 ppm)	—	—	—	(5) 10 ml vial
502-602	Nitrogen (Liquid)	—	—	0.1% (1000 ppm)	—	—	—	(5) 10 ml Vial
502-641	Phenylalanine	65.4	6.7	8.5	—	—	—	5 g
502-642	Phenylalanine	65.4	6.7	8.5	—	—	—	50 g
502-654	BBOT	72.5	6.0	6.5	—	7.4	—	25 g
774-208-150	Benzoic Acid	—	—	—	—	—	11373	(50) 1 g t/plt.

## Synthetic Carbon Set-Up Standards

Part No.	Description	% C	Contents
502-632	Synthetic Carbon	0.1–0.2	50 g
502-630	Synthetic Carbon	0.40–0.60	50 g
502-029	Synthetic Carbon	0.90–1.10	50 g
502-030	Synthetic Carbon	4.90–5.10	50 g

## Natural Matrix Set-Up Standards

Part No.	Description	% C	% H	% N	% S	Contents
501-561-150	Soy Flour	—	—	8.0–10.0	—	50 g
501-563-150	Corn Flour	—	—	0.8–1.6	—	50 g
502-055	Orchard Leaves	44.0–52.0	5.7–6.5	2.0–2.8	0.15–0.25	20 g
502-082	Tobacco Leaves	35.0–47.0	4.0–7.0	2.0–4.0	0.3–0.8	20 g
502-272	Corn Gluten	51.0–53.0	7.0–7.5	11.0–12.0	0.75–1.0	50 g
502-273	Alfalfa	45.0–47.0	5.5–6.5	2.5–5.0	0.25–0.35	50 g
502-274	Wheat Flour	44.0–46.0	6.0–7.0	2.5–3.5	0.15–0.25	50 g
502-275	Rye Flour	43.5–45.5	6.0–7.0	1.5–2.5	0.10–0.20	50 g
502-276	Oat Meal	45.0–47.0	6.0–7.0	2.5–3.5	0.15–0.25	50 g
502-277	Barley Flour	45.0–47.0	6.0–7.0	1.0–3.0	0.10–0.20	50 g
502-278	Rice Flour	43.0–45.0	6.0–7.0	1.0–3.0	0.10–0.20	50 g

# Standards

Numbers listed represent an average from multiple lots or an expected range for a particular lot's average. Call 800-292-6141 for exact chemistry and availability.

## Soils and Ore Tailings Set-Up Standards

Part No.	Description	% C	% H	% N	% S	Contents
502-062	Soil	0.75–1.25	0.3–0.5	0.09–0.15	0.015–0.3	65 g
502-308	Soil	2.5–3.5	—	0.2–0.3	0.015–0.3	65 g
502-309	Soil	10.0–14.0	—	0.3–1.0	0.015–0.3	65 g
502-814	Soil	20.0–35.0	—	—	0.1–0.5	25 g
502-318	Ore Tailing	≤2	—	—	≤2	25 g
502-319	Ore Tailing	1–5	—	—	1–5	25 g
502-320	Ore Tailing	2–6	—	—	2–6	25 g
502-372	Ore Tailing	3–10	—	—	3–10	25 g
502-491	Ore Tailing	7–15	—	—	7–15	25 g

## Coal and Coke Reference Materials

Part No.	Description	% Sulfur	Contents
502-670	Coal	~0.5	50 g
502-671	Coal	~1.0	50 g
502-672	Coal	~2.0	50 g
502-673	Coal	~3.0	50 g
502-674	Coal	~5.0	50 g

Part No.	Description	% Sulfur	% Volatile	% Ash	% C	% H	% N	BTU/lb.*	Contents
502-680	Coal Prox Plus Low	~0.3	~17.0	~11.0	~81.0	~4.0	~1.0	~13893	50 g
502-681	Coal Prox Plus Med.	~1.3	~32.0	~9.0	~78.0	~5.0	~1.5	~13892	50 g
502-682	Coal Prox Plus High	~0.5	~41.0	~6.0	~75.0	~5.0	~1.5	~13019	50 g
502-683	Met Coke Prox Plus	~0.75	~1.0	~10.0	~87.0	~0.3	~1.0	~12718	50 g
502-684	Pet Coke Prox Plus	~5.5	~13.4	~0.3	~87.0	~3.6	~1.5	~15367	50 g

\*for information purposes only

Part No.	Description	ppm Hg	% S	% C	Contents
502-405	NIST 1632d Coal	~0.09	—	—	75 g
502-406	NIST 1633c Fly Ash	~1.0	—	—	75 g
502-499	BCR 143r Mercury in Dry Sludge	~1.1	—	—	50 g
502-649	NIST 2781 Mercury in Dry Sludge	~3.64	—	—	40 g
502-685	LECO Coal RM Low Hg	~0.05	~1.0	—	50 g
502-686	LECO Coal RM Medium Hg	~0.10	~4.2	—	50 g
502-687	LECO Coal RM High Hg	~0.14	~2.2	—	50 g
502-813	LECO Fly Ash	~0.35	~1.0	~1.0	20 g

## TGA Check Sample

Part No.	Description	% Weight Loss at 200°C	% Weight Loss at 400°C	% Weight Loss at 850°C	Contents
502-091	Calcium Oxalate	12	19	30	50 g

## Metal Wire Standards for AF700

Part No.	Description	Melting Point	Contents
502-496	Gold Wire	1063°C	6 inch
501-951	Nickel Wire	1452°C	6 inch

# Standards

Numbers listed represent an average from multiple lots or an expected range for a particular lot's average. Call 800-292-6141 for exact chemistry and availability.

## QAR CERTIFIED REFERENCE MATERIALS

QAR Coal CRM certificate values and uncertainties are confirmed and validated by the Quality Associates International, LTD (Canada) Proficiency Testing program (CANSPEX™) which includes up to 132 coal testing laboratories from around the world.

Part No.	Description	% S	% Volatile	% Ash	% C	% H	% N	BTU/lb.	ppm Cl	ppm F	ppb Hg	ppm Se	FSI	Contents
502-831	QAR CRM Coal 1	1.5	35.2*	6.9	74.6*	4.8	1.7	13093*	3537	45	121	1.3	1.5	50 g
502-832	QAR CRM Coal 2	0.25	36*	13.0	70.0*	4.0	0.9	11771*	>0.01	81	0.03	0.67	1.0	50 g
502-833	QAR CRM Coal 3	0.34	16.5*	10.9	81.0*	4.01	1.1	13862*	361	95	45	0.99	1.4	50 g
502-834	QAR CRM Coal 4	0.30	34.9*	12.5	68.5*	4.3	0.9	11661*	57	65	37	0.67	—	50 g
502-835	QAR CRM Coal 5	0.5	39.0*	10.5	68.5*	5.0	1.7	12000*	>0.01	110	0.03	1.0	1.0	50 g
502-836	QAR CRM Coal 6	3.99	39.2*	12.6	70.2*	4.9	1.3	12604*	521	72	97	1.5	4.5	50 g
502-837	QAR CRM Coal 7	3.26	38.4*	9.0	72.6*	4.9	1.4	12918*	926	86	58	1.8	1.5	50 g
502-838	QAR CRM Coal 8	0.7	40.6*	12.1	68.5*	4.9	1.2	12000*	>0.01	75	0.04	0.99	1.5	50 g
502-839	QAR CRM Coal 9	2.1	37.7*	7.6	77.5*	5.1	1.5	13833*	1008	66	132	1.1	7.8	50 g

\*For information purposes only

## ARMI Certified Reference Materials

Part Number	Description	Contents
502-389	Residual Fuel Oil CRM Sulfur ~0.1%	118 ml (4 oz.)
502-390	Residual Fuel Oil CRM Sulfur ~0.5%	118 ml (4 oz.)
502-391	Residual Fuel Oil CRM Sulfur ~1%	118 ml (4 oz.)
502-392	Residual Fuel Oil CRM Sulfur ~2%	118 ml (4 oz.)
502-393	Residual Fuel Oil CRM Sulfur ~3%	118 ml (4 oz.)
502-394	Residual Fuel Oil CRM Sulfur ~4.5%	118 ml (4 oz.)
502-417	White Mineral Oil CRM Sulfur ~0.01%	118 ml (4 oz.)
502-418	White Mineral Oil CRM Sulfur ~0.05%	118 ml (4 oz.)
502-419	White Mineral Oil CRM Sulfur ~0.10%	118 ml (4 oz.)
502-420	White Mineral Oil CRM Sulfur ~0.50%	118 ml (4 oz.)
502-421	White Mineral Oil CRM Sulfur ~1%	118 ml (4 oz.)
502-422	White Mineral Oil CRM Sulfur ~2%	118 ml (4 oz.)
502-423	White Mineral Oil CRM Sulfur ~3%	118 ml (4 oz.)
502-424	#2 Diesel Fuels CRM Sulfur ~0.01%	118 ml (4 oz.)
502-425	#2 Diesel Fuels CRM Sulfur ~0.03%	118 ml (4 oz.)
502-426	#2 Diesel Fuels CRM Sulfur ~0.05%	118 ml (4 oz.)
502-427	#2 Diesel Fuels CRM Sulfur ~0.10%	118 ml (4 oz.)
502-428	#2 Diesel Fuels CRM Sulfur ~0.50%	118 ml (4 oz.)
502-429	#2 Diesel Fuels CRM Sulfur ~1.0%	118 ml (4 oz.)
502-430	#2 Diesel Fuels CRM Sulfur ~2.0%	118 ml (4 oz.)
502-431	#2 Diesel Fuels CRM Sulfur ~3.0%	118 ml (4 oz.)
502-432	#2 Diesel Fuels CRM Sulfur ~4.5%	118 ml (4 oz.)

Part No.	Description	% Sulfur	% Volatile	% Ash	% C	% H	% N	BTU/lb.	Contents
502-806	7.00% S in Raw Pet Coke CRM	6.73	10.63	0.32	87.53*	3.36*	1.73*	15024**	50 g
502-807	1.50% S in Raw Pet Coke CRM	1.54	9.7	0.17	92.7*	3.64*	1.56*	15681**	50 g
502-812	EDTA CRM	—	—	—	~41.1	~5.55	~9.56	—	50 g
502-815	Mineral Oil CRM	—	—	—	~86.0	~13.80	—	~19790	118 ml (4 oz.)
502-816	Residual Fuel Oil	~3.0	—	—	~86.0	~10.0	~0.3	~18300	118 ml (4 oz.)

\*Value is not certified

\*\*for information purposes only

# O-Rings

See individual consumable and spares reference cards for precise location of o-rings for most instruments. For exact o-ring sizes, please refer to the drawings on pages 19 and 20.

## AC500

Part No.	Location
608-624	Vessel Lid
608-750	Filter
760-224	Oxygen Fill Nozzle
760-359	Filling Insert
773-913	Depressurization Valve
776-562	Ceramic Washer

## AC600

Part No.	Location
611-543	Prep Station Nipple Charger
621-605-560	Vessel Cap
621-605-664	Check Valve
621-605-973	Seal Insert Exhaust
772-738	Prep Station Inserts
773-913	Electrode Post
776-562	Ceramic Washer

## AF700

Part No.	Location
625-501-149	Furnace Tube
625-501-161	Periscope Window
625-501-284	Periscope
625-501-430	Thermocouple/Gas Inlet Tube
760-841	Filter Tube
765-976	Filter Tube
772-520	Balston Filter

## AMA254

Part No.	Location
614-822-106	Carrier Gasket
614-822-108	Amalgamator Gasket
614-822-117	Cuvette

## FP-528

(See TruSpec, TruSpec Micro, FP-528)

## SC-144DR/S-144DR/C-144

Part No.	Location
616-068	Inner Combustion Tube
772-520	Reagent Tube
773-320	Reagent Tube
783-897	Outer Combustion Tube

## SC632, CHN628 Series S Module, TruSpec S

Part No.	Location
606-333	Lance Tube (SC-432/444, SC632, and TruSpec Sulfur w/o Autoloader)
611-476	Inner Combustion Tube
611-477	Outer Combustion Tube
772-520	Reagent Tube/Particle Filter
773-320	Reagent Tube
625-401-301	Purge Tube (SC632, CHN628 Series S Module, TruSpec S Module with Autoloader)
625-401-302	Lance (SC632, CHN628 Series S Module, TruSpec S Module with Autoloader)



# O-Rings

See individual consumable and spares reference cards for precise location of o-rings for most instruments. For exact o-ring sizes, please refer to the drawings on pages 19 and 20.

## CHN/CN/FP628 Series, TruSpec Series, TruSpec Micro, FP-528

Part No.	Location
589-551	Sliding Block
601-442	Reduction Tube/Lance Tube
601-504	Loading Head
601-505	Load Head
601-684	Slide Block
601-939	Cylinder Block
612-340	Pre-Chiller
616-138	Secondary Furnace
617-136	Load Head
619-192	Lance Shield
625-602-297	Valve Stem (CHN/CN/FP628 Series)
702-557	Secondary Furnace Mount
763-379	Condensing Block (TE Cooler)
765-976	Filter Tube
771-407	Load Head Plunger
772-269	Valve Stem (TruSpec Series, FP528)
772-520	Reagent Tube
772-738	Heater Assembly
772-910	Piston
773-913	Sample Block
774-253	Aliquot Manifold
774-425	Slide Block
776-017	Ballast Retainer Plate
778-116	Ballast Assembly
778-120	Gasket
780-831	Lance

## TruMac N

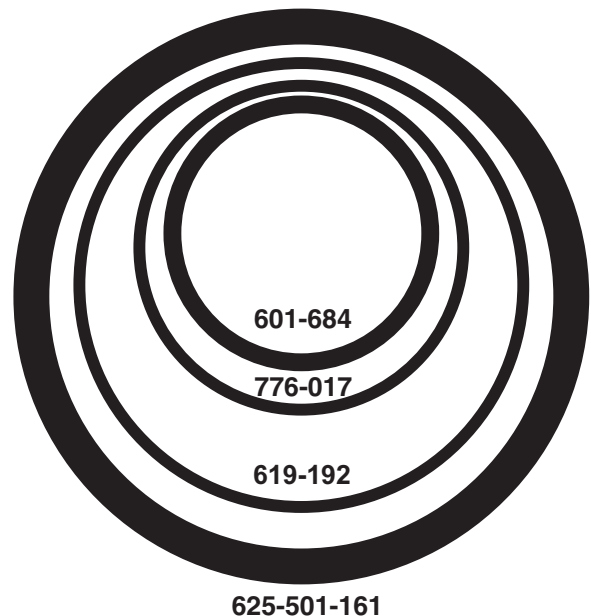
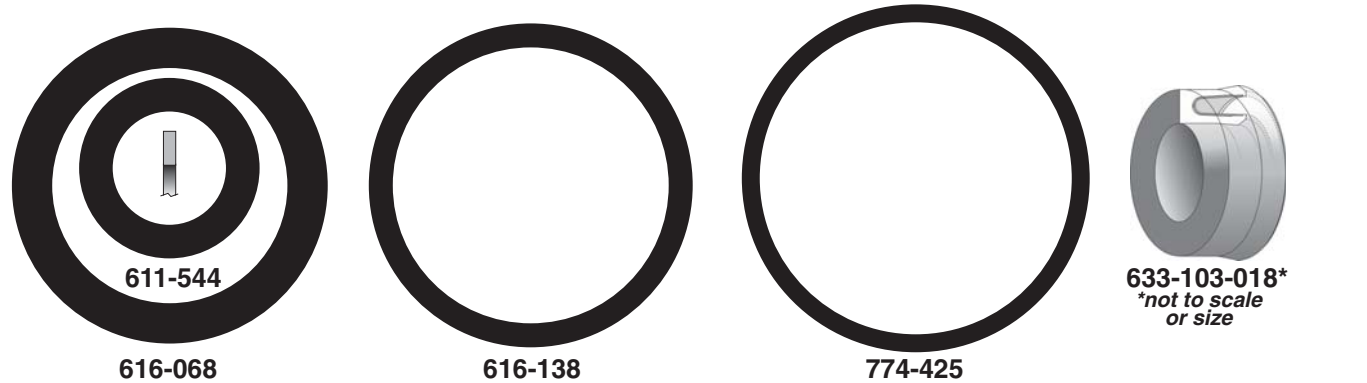
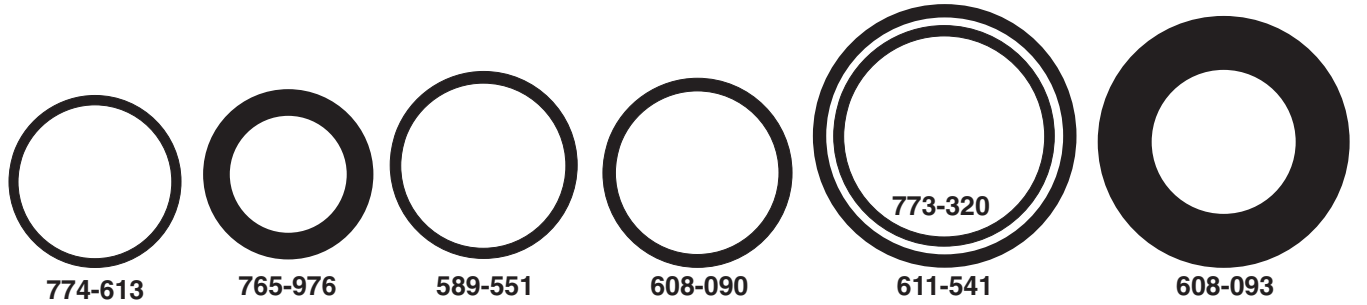
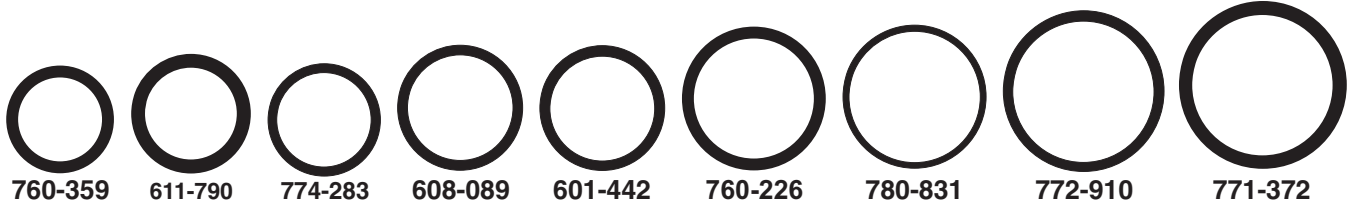
Part No.	Location
601-442	Loader Arm Assembly
608-089	Pinch Valve
611-476	Inner Combustion Tube
611-477	Outer Combustion Tube
612-340	Pre-Chiller
625-602-297	Doser Stem
625-602-319	Cup Seals (Purge Block)
633-103-018	Radial Seal (Loader Arm)
763-379	Condensing Block (TE Cooler)
772-520	Lance/Loader Arm Assembly/ Reagent Tube
760-226	Pinch Valve
774-613	Loader Arm Assembly
778-116	Ballast Piston
778-120	Gasket
805-481	Purge Block

## TruSpec Micro O

Part No.	Location
589-551	Sliding Block
608-089	Inner Pyrolysis Tube
608-090	Outer Pyrolysis Tube
608-091	Outer Pyrolysis Tube
608-093	Interface Block
772-910	Piston
774-283	Cylinder
774-613	Cylinder

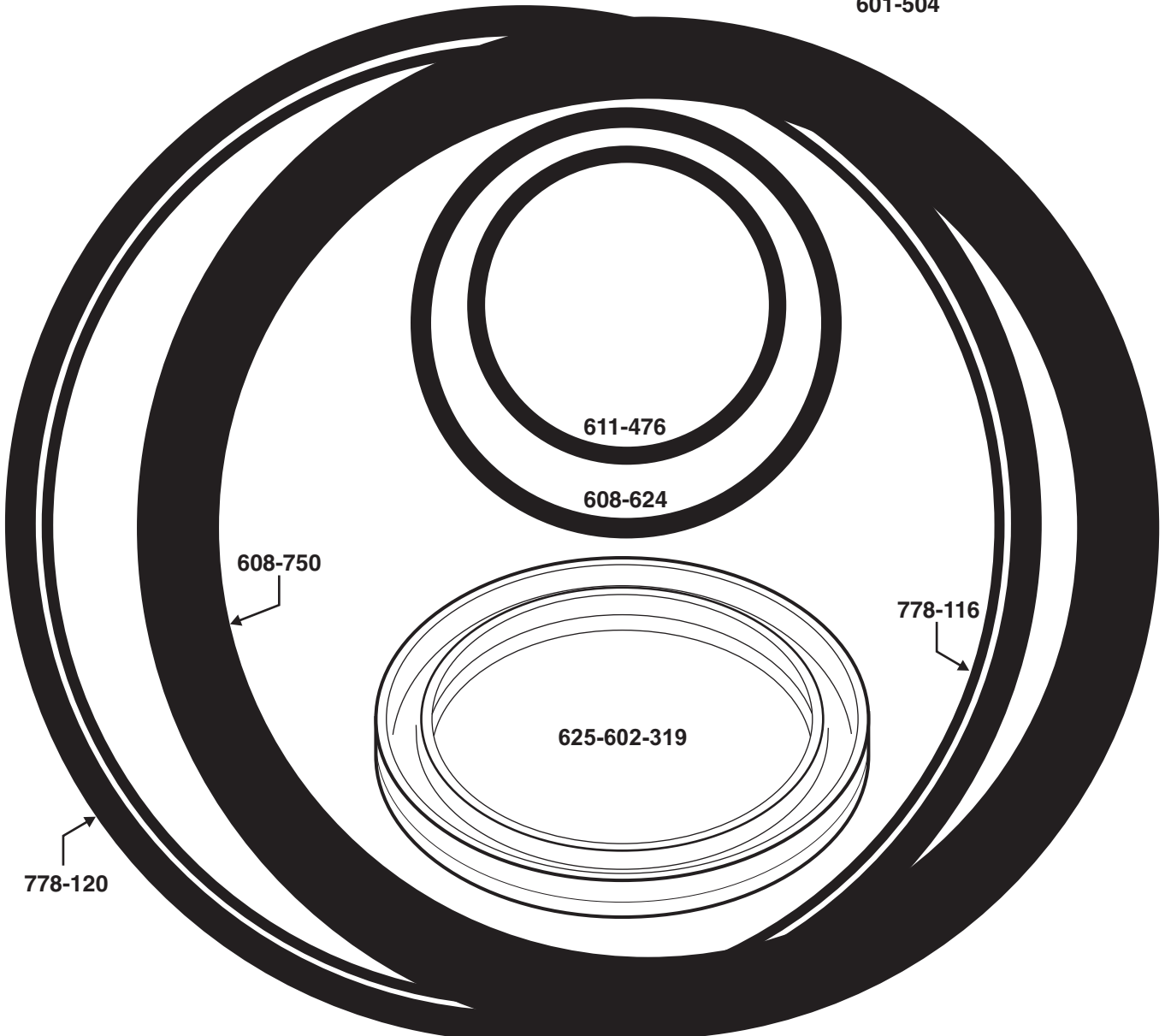
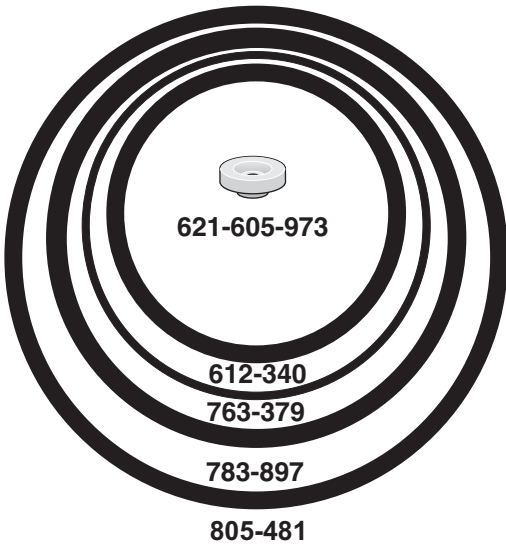
# O-Rings

Drawings to scale.



# O-Rings

Drawings to scale.



# Miscellaneous Operating Accessories

Refer to page 24 for a visual reference of the miscellaneous operating accessories.

## Ash Fusion Determinators

501-233-HAZ	Ceramic Aluminum Adhesive
502-010	Dextrin Solution
613-564	T-Clamp Expansion Tool
616-504	Filter (0.01 micron)
625-501-328	Replacement Heating Element Kit
625-501-361	Replacement Furnace Tube Kit
625-501-363	Ash Cone Tray Tool
625-501-431	Door Interlock Bypass Key
625-501-471	Test Pin Tray
633-101-441	Furnace Thermocouple
761-929	Tongs
776-957	Ash Cone Mold (ASTM 1857)
776-958	Spatula

## Calorimeters

501-241	Vacuum Grease
502-051	Tweezers, Curved Fine Point
502-296	Filter, 100/pkg (AC500)
502-460	Fixed Wire Igniter, 5/pkg (AC500)
502-461	Cotton Thread Fuse, 10 cm, 375/pkg
502-462	Fuse Wire, 10 cm, 375/pkg
601-980	Wash Bottle
608-671	Inline Filter (AC500)
621-322	Pellet Press
621-605-517	Vessel Lid Removal Tool (AC600)
621-605-744	AC600 Prep Station Flush Adapter
621-605-750	Vessel Tool Kit (AC600)
621-605-777	AC600 Wire Fuse Vessel Conversion
621-605-803	Fixed Wire Igniter, 5/pkg (AC600)
621-265	Cleaning Brush
621-657	Filter Cartridge, 1 micron (AC600)
633-101-923	Combustion Vessel Holder (AC600)
762-515	O-Ring Removal Tool
774-204	Stainless Steel Crucibles, 10/pkg
774-649	Crucible Cleaning Brush
776-978	Glass Scoop

## Carbon/Hydrogen/Nitrogen/Sulfur/Oxygen Determinators

501-241	Silicone Grease
501-614	Spatula
502-023	Funnel
502-028	Tweezers, Straight
502-051	Tweezers, Curved
502-213	Leak Detection Solution
601-964	Crimping Pliers
601-982	Spatula
604-373	Small Sample Cup Holder
604-378	Tweezers, Curved
604-398	Large Sample Cup Holder
604-493	Cap Holder
604-538	15-Micron Filter
608-135	Pyrolysis Tube Extractor Tool
616-152	Crucible Extractor
616-310	Vacuum Cleaner Attachment
775-306	10 mm Screen Filter
775-307	Filter Tool
778-321	Lance Extractor Tool
778-405	Sample Storage Block

## Mercury Analyzers

614-822-101	Small Nickel Boat Loop
614-822-103	Beam Boat
614-822-104	Spoiler
614-822-107	Silicone Amalgamator Joint Tube
614-822-108	Amalgamator Gasket
614-822-109	Output Tube
614-822-110	Amalgamator
614-822-113	Large Boat Loop
614-822-121	Amalgamator Coil
614-822-129	Oxygen Needle Valve
614-822-190	Mercury Lamp

# Miscellaneous Operating Accessories

Refer to page 24 for a visual reference of the miscellaneous operating accessories.

## Nitrogen/Protein Determinators

501-241	Silicone Grease
501-614	Spatula
502-005	Brush
502-007	Tube Cleaner
502-023	Funnel
502-028	Tweezers, Straight
502-213	Leak Detection Solution
502-450-100	Quartz Furnace Filter (TruSpec)
502-476	10 ml Vials for DI-PAL Liquid Autosampler/TruSpec (100/pkg)
502-477	Screw Tops for 502-476 Vials (100/pkg)
503-032	Regular Glass Scoop
601-490-110	Sample Foiler Kit
601-981	Wire Brush
603-350	O-ring Installation Tool
604-373	Small Sample Cup Holder
604-378	Tweezers, Curved
604-398	Sample Cup Holder
604-485-110	Leak Tester Kit
604-492	Quick Sampler Kit
604-493	Cap Holder
609-170-110	Gel Cap Sample Dispenser Includes: 502-338 Small Gel Cap (400) 604-373 Small Sample Cup Holder for Balance 611-255 Plunger Assembly 609-172-020 Replacement Tubes (20)
611-844	Spatula (Macro)
616-152	Crucible Extractor Tool
619-180-110	Stackable Carousel Assembly (CHN/CN/FP628 Series, TruSpec Series)
619-377	Bypass Plate (CHN/CN/FP628 Series, TruSpec Series)
619-380	Vacuum Cleaner Attachment Assembly
619-591-699	0.1 Micron Filter (Disposable)
625-067-120	Heater Element Repair Kit (TruMac)
762-515	O-ring Removal Tool
775-306	Secondary Filter
775-307	Filter Tool
778-405	10-Sample Storage Block
801-076	Duckbill Check Valve for DI-PAL Liquid Autosampler/TruSpec (50/pkg)

## Proximate/Thermogravimetric Analyzers

502-628	Crucible Foil Liner (1200/pkg)
614-442-110	Large Crucible Turntable
621-361	~5 g Quartz Rod
761-929	Crucible Tongs
776-978	Glass Scoop
778-898	Crucible Cover Forceps

# Miscellaneous Operating Accessories

Refer to page 24 for a visual reference of the miscellaneous operating accessories.

## Sulfur/Carbon Determinators

175-590	Diaphragm and Flapper Valve Kit
501-062	Boat Puller (SC-Series)
501-241	Silicone Grease
501-614	Spatula
502-023	Funnel
503-032	Glass Scoop
606-316	Outlet Port Adapter
606-319	Cable, Wire Braid
606-320	Clamps
606-403	Adapter Brush
606-547	Boat Pull for Autoloader
606-560	Hot Plate Tray
606-563	Hot Plate Tray Liner
606-601	Heating Element Set for SC-400 Series, CR-412, SC-144DR, S-144DR, C-144 (1 set of 4)
613-563	Braided Cables (short strap) (SC144)
613-564	Expansion Tool for Braided Cables
616-012	Front Flange
616-013	Compress Flange
616-063	Boat Puller (SC144DR only)
625-067-120	Heating Element Replacement Kit (SC632, TruSpec S Module)
761-929	Crucible Tongs
768-980	Balston Filter
775-859	Cleaning Brush
776-978	Large Glass Scoop
777-073	Thermocouple Assembly



# Miscellaneous Operating Accessories

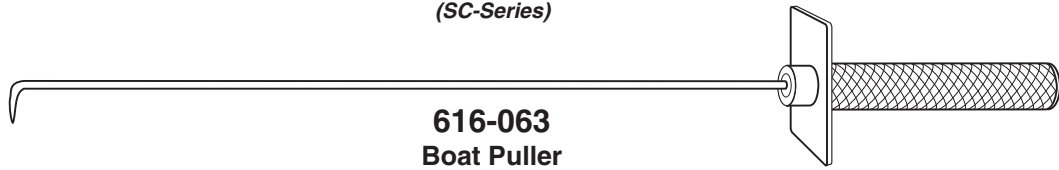
Most commonly used items represented.



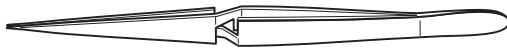
**776-978**  
Glass Scoop



**501-062**  
Boat Puller  
(SC-Series)



**616-063**  
Boat Puller  
(SC144DR only)



**502-028**  
Straight Tweezers



**503-032**  
Glass Scoop



**502-051**  
Curved Tweezers



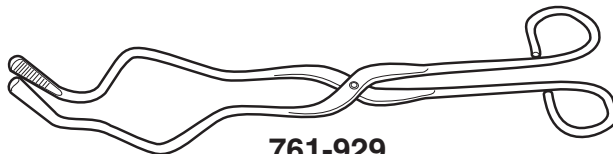
**501-614**  
Spatula



**604-378**  
Curved Tweezers



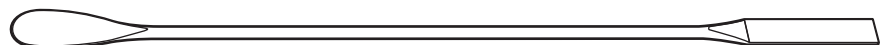
**601-982**  
Spatula



**761-929**  
Crucible Tongs



**502-023**  
Funnel



**611-844**  
Spoon

# Preventive Maintenance Agreements

Much like an automobile, routine checks and maintenance need to be performed regularly on your laboratory instrumentation to keep them in peak operating condition. That is why we have designed Preventive Maintenance Agreements (PMAs) for select LECO instrument models.

PMAs are a smart, convenient way to help you prevent unexpected downtime and associated costs. With LECO PMAs, trained LECO service specialists perform maintenance checks on your instrument (including cleanings and flow-path rebuilds) on a regularly scheduled basis. One, all-inclusive part number covering routine parts, labor, and travel can be easily purchased and renewed. (Note: Replacement parts and labor that may be necessary to repair an instrument are **not** included in this package.)

Start maximizing your production today with PMAs from LECO. To receive a quote or for more detailed information, please call **269-982-5497**.

	Part No.
AMA254 Mercury Analyzer (1 visit)	104-111
CHN/CN/FP628 Series (1 visit)	104-124-HAZ
CHN/CN/FP628 w/Sulfur Module Series (1 visit)	104-125-HAZ
FP-528 Nitrogen/Protein Determinator (1 visit)	104-101-HAZ
SC-144DR Sulfur/Carbon Determinator (1 visit)	104-110-HAZ
SC632 Sulfur/Carbon Determinator (1 visit)	104-121-HAZ
TFE2000 Total Fat/Oil Determinator (1 visit)	104-104
TruMac Macro Nitrogen, Carbon/Nitrogen Determinator SN 4000 and below (1 visit)	104-123-HAZ
TruMac Macro Nitrogen, Carbon/Nitrogen Determinator SN 4000 and above (1 visit)	104-126-HAZ
TruSpec® Series of Elemental Determinators (1 visit)	104-112-HAZ
TruSpec with Sulfur Module Add-On (1 visit)	104-122-HAZ

For the latest instrument information including app notes, kits & bulletins, reference cards, and consumables go to [www.leco.com](http://www.leco.com)

# SmartLine Remote Diagnostics

## SmartLine® Internet-Based Remote Diagnostics

SmartLine provides you with an online support connection between your instrument and LECO's Global Support Center, allowing trained service specialists to remotely operate your instrument as if they were right there with you.

### How it Works

1. Simply call LECO's Global Support Center at 269-982-5497 during normal working hours to get your session code\*
2. Log onto <http://rc.leco.com> and enter your session code
3. LECO accepts the connection. Your SmartLine session has begun!

*\*LECO's normal working hours are Monday through Friday, 8:00 a.m. to 5:00 p.m. EST. Additional sessions outside normal business hours can also be scheduled by appointment.*

Description	Part No.
SmartLine Start-Up (includes five hours of on-line support)	710-198-B/O
SmartLine Renewal (Five-hour time blocks, valid for one year from date of purchase)	710-199-B/O

**To contact LECO regarding any service-related issue, call 269-982-5497.**

# Instrumentation

For over 75 years, LECO has pioneered new and innovative instrumentation for your laboratory. Our product lines continue to grow each year to include a wider variety of target applications.



## **Mined Materials & Metals** (for more information, request form no. 209-205-001)

- Carbon/Sulfur
- Carbon and Water
- Nitrogen/Oxygen/Hydrogen
- Hydrogen
- Glow Discharge Spectroscopy
- Metallographic Sample Preparation
- Microstructural Analysis



## **Energy & Fuels** (for more information, request form no. 209-205-002)

- Carbon/Hydrogen/Nitrogen
- Sulfur/Carbon
- Mercury
- Moisture/Ash/Volatile Matter
- Calorimetry
- High Resolution LC- & GC-TOFMS
- GC-/GCxGC-TOFMS
- GCxGC-FID/ECD



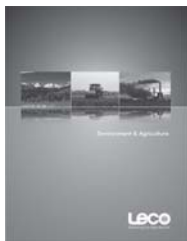
## **Life Sciences** (for more information, request form no. 209-205-003)

- Carbon/Hydrogen/Nitrogen/Sulfur (in micro samples)
- High Resolution LC- & GC-TOFMS
- GC-/GCxGC-TOFMS



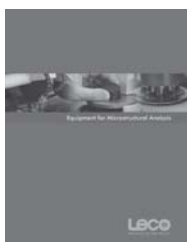
## **Food** (for more information, request form no. 209-205-004)

- Mercury
- Carbon/Hydrogen/Nitrogen
- Carbon/Hydrogen/Nitrogen (in macro samples)
- Moisture/Ash/Volatile Matter
- High Resolution LC- & GC-TOFMS
- GC-/GCxGC-TOFMS
- GCxGC-FID/ECD



## **Environment & Agriculture** (for more information, request form no. 209-205-005)

- Mercury
- Carbon/Hydrogen/Nitrogen
- Carbon/Hydrogen/Nitrogen (in macro samples)
- Moisture/Ash/Volatile Matter
- High Resolution LC- & GC-TOFMS
- GC-/GCxGC-TOFMS
- GCxGC-FID/ECD



## **Metallographic/Optical** (for more information, request form no. 203-927)

- Sample Preparation Equipment
- Image Analysis/Management Systems
- Hardness Testing Systems
- Accessories

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Fax: 27-11-974-1848

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 Other \_\_\_\_\_  
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LECO Part No.	Description	Qty.	Price

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